

# PATENT SPECIFICATION

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## (54) COSMETIC COMPOSITION AND METHOD FOR APPLYING SAME

(71) We, BRITISH - AMERICAN TOBACCO COMPANY LIMITED, a British Company, of P.O. Box 482, Westminster House, 7 Millbank, London, SW1P 3JE, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly in and by the following statement:—

10 The invention relates to a cosmetic composition and method for applying same for cleaning and soothing the skin. In particular, it relates to the topical application of a skin cleanser which has the property among others, of generating a soothing heat upon application.

In the past skin cleansers containing clay-like adsorbants have been applied to the skin to remove solid and liquid contaminants accumulated on the surface of the skin. For the most part these cleansers did not satisfactorily remove, if at all, undesired materials accumulated deep in skin pores.

25 Additionally, moisturisers or humectants were frequently applied before or after such cleansing treatment to soften dried skin and to replace lost moisture therefrom. A common ingredient of such humectants was an aqueous solution of glycerine. An important function of the glycerine in such humectants was to conserve skin moisture.

30 Various preparations are available which purport to soothe cutaneous tissue by the local generation of heat. Such cosmetic compositions usually contain ingredients promoting the supply of blood to the vicinity generally by diluting the blood capillaries, which often are both irritating to the skin and dangerous to apply.

35 It is an object of this invention to provide a new method composition for simultaneously achieving deep cleansing action and generating soothing warmth for cutaneous tissue free of the side effects and deficiencies of the prior art.

40 According to the invention there is provided a topically applicable composition for cleans-

ing and soothing cutaneous tissue comprising: a non-irritating, essentially anhydrous polyol capable of exothermically dehydrating the cutaneous tissue and an adsorbent particulate filler wherein the weight proportion of polyol is from 40% to 90% and the weight proportion of filler is from 60% to 10%.

The invention also consists in a process of simultaneously cleansing cutaneous tissue pores and soothing cutaneous tissue by applying to the tissue a composition as defined above. As a result, moisture flow through the tissue pores is stimulated and removal of impurities from the pores is facilitated. The anhydrous polyol has an extremely high affinity for moisture. With the removal of surface moisture by the polyol, moisture deep in the skin pores rises through the pores by capillary action, thereby washing out impurities located in the pores.

50 As skin moisture and the aforesaid anhydrous polyol combine, energy is released to the skin in the form of heat, probably from the heat of solution of the polyol. Upon repeating the application of the polyol of the invention, the pores of the skin are further flushed by moisture rising through the skin pores replacing the moisture which combines with the polyol.

55 The composition of the invention can advantageously form a cosmetic lotion, cream or stick. A particularly effective composition is formed by combining a non-irritating, substantially anhydrous polyol capable of exothermically dehydrating the cutaneous tissue and an absorbent particulate filler wherein the weight proportion of polyol is from about 40% to 90%, preferably 50—80%, and the weight proportion of filler is from about 60% to 10%, preferably 50—20%, based on the weight of polyol and binder. Within the aforesaid proportions the cosmetic composition may be formed into a cream which can be readily applied to the skin for effective cleansing and soothing action.

60 The aforesaid skin cream can be formulated by forming a thick paste of the polyol and

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particulate filler and thereafter processing said paste to form a cream.

- The polyol of the invention must as indicated be substantially anhydrous in order to release noticeable quantities of heat upon application to moist skin. The heat of solution phenomenon which provides local warmth for the skin is frustrated should the polyol be combined with even minor quantities of water prior to application to the skin. For best results, the polyol should contain no more than about 3% water and more preferably, no more than about 0.5% by weight of water.

For effective use the polyol must not produce skin or eye irritation. Examples of typical polyols satisfying the aforesaid requirements include: ethylene glycol, diethylene glycol, dipropylene glycol, hexylene glycol, tetraethylene glycol and triethylene glycol.

- These and other polyols, while capable of generating a soothing heat upon application to the skin, do not liberate excessive quantities of heat such as to raise the temperature of the skin above about 100—105°F. It is an important feature of the invention that the quantity of heat released by the polyols during application is not sufficient to cause a local burning sensation or to redden the skin.

Certain polyethylene glycols are also effective. These include polymers of ethylene oxide with the generalised formula:



wherein  $n$  represents the average number of oxyethylene groups. For the purposes of this application products in this polymeric series are herein designated by a number which roughly represents their average molecular weight. Effective polyethylene glycols include those having an average molecular from about 200—300 and from about 1,000—6,000.

Particularly safe and effective polyols include propylene glycol, and glycerol and mixtures thereof.

Other ingredients may be combined with the aforesaid polyols. Such ingredients include perfumes, bacteriacides, pigments and stabilisers.

Effective fillers include powdered adsorbent clay-like materials such as kaolin, bentonite, diatomaceous earth, fuller's earth, attapulgite and the like. Other adsorbent fillers may be employed such as finely divided or fumed titanium dioxide and finely divided or fumed silicon dioxide.

- In another embodiment, a solid cleansing stick is formed by combining from about 80% to 40% by weight polyol and from about 10% to 60% powdered filler. In general, it has been found that the cosmetic stick yields less warmth and dehydrating action than the cosmetic lotion and cream form of the invention. For best results, the filler should contain a major proportion of a stearate, such as sodium

stearate or zinc stearate and a minor proportion of clay-like fillers and/or titanium or silicon dioxide.

In another and more preferred embodiment of the invention a cosmetic cream is employed. The cream comprises a polyol of the invention and an adsorbent particulate filler wherein the weight proportion of polyol is from about 80% to 40% and the weight proportion of filler from about 20% to 60%. Typical creams are formed by combining any of the following binders with any of the following polyols in the aforesaid proportions:

Filler	Polyol	
Bentonite	Glycerol	
Diatomaceous earth	Propylene glycol	
Fuller's earth	1,3-butyleneglycol	80
Attapulgite	Diethylene glycol	
Fumed, or finely divided titanium dioxide	Dipropylene glycol	
Fumed, or finely divided silicon dioxide	Triethylene glycol	
Kaolin		85

A cream of enhanced stability is obtained by combining from about 55 to 65% by weight polyol and from about 45 to 35% by weight filler.

If desired, fatty acid soaps, such as stearates, may be employed in place of a portion and usually no greater than about 50% by weight of the clay-like fillers or titanium or silicon dioxide. Typical soaps include sodium stearate and zinc stearate.

In order to prepare a cosmetic cream of the invention a particulate blend of the solid ingredients is formed using a powder blender or the like. The polyol is thereafter mixed with the powder blend until a thick paste is obtained. The resulting paste may be thereafter milled through a three-roller mill or the like to form a cream. A particularly preferred cosmetic cream is prepared by forming a powder blend of the following solids in the weight proportions indicated.

Solids	Weight Proportion	
Kaolin	13 parts	110
Amorphous (fumed or finely divided titanium dioxide	13 parts	
Amorphous (fumed or finely divided silicon dioxide	7 parts	
Methyl parasept	0.17 parts	115

The commercial form of the fumed titanium dioxide employed is identified as CAB-OTi. The commercial form of the fumed silicon dioxide employed is identified as Cab-o-Sil.

The powder blend is combined with 66.13 parts by weight anhydrous (99.5%) glycerine and 0.7 parts by weight perfume until a thick

paste is obtained. The paste is then milled through a 3-roller mill to form the cream.

The amount of cosmetic cleanser applied to the skin to provide the cleansing and warming effects is not critical. In general, a single application of the cosmetic cream of the invention usually contains from about 5 to 10 grams of polyol and binder.

Samples of representative creams, sticks and lotions of the invention have been applied to test subjects with no evidence of skin or eye irritation. Similar results have been obtained with laboratory animals with respect to skin irritation and eye irritation studies.

The following examples illustrate the preparation and use of the cosmetic compositions of the invention.

#### EXAMPLE 1

A cosmetic lotion of the invention was prepared by forming a powder blend of 50% by weight kaolin and 50% by weight zinc stearate. To 10% by weight of this blend was added 90% by weight of a base containing 98% anhydrous glycerol and 2% silicon dioxide (fumed) and the resulting mixture was stirred until a lotion was obtained. The lotion was applied to the skin. The subjects reported that a warm, soothing heat was obtained at the point of application. Significant quantities of liquid and solid contaminants were removed from the skin by the application.

#### EXAMPLE 2

A cosmetic cream of the invention was prepared by forming a powder blend from a mixture of 50% by weight kaolin and 50% by weight zinc stearate. A thick paste was formed by blending varying quantities of the aforesaid powder blend with a base of 98% glycerol and 2% silicon dioxide (fumed) to form a paste. The paste was thereafter mixed in a three-roll mixer to form a cream. The following two creams were formulated:

	Ingredients	Weight Percent
45	1. Glycerol-silicon dioxide base 50/50 kaolin, zinc stearate	80% 20%
	2. Glycerol-silicon dioxide base 50/50 kaolin, zinc stearate	70% 30%

Each of the above compositions was applied to the skin with satisfactory results.

#### EXAMPLE 3

In order to further illustrate the cream compositions of the invention a skin cream was prepared by combining varying quantities of anhydrous glycerol and propylene glycol and a blend (powder) of kaolin, fumed titanium dioxide and fumed silicon dioxide fillers according to the procedure of Example 1. The following five compositions were

applied to the skin of test subjects with satisfactory results:

Ingredients	Parts (weight)	Parts by weight	
1. Glycerol	8		
Propylene glycol	56	64 polyol	65
Kaolin	14	34 fillers	
Titanium dioxide	14		
Silicon dioxide	6		
2. Glycerol	29		70
Propylene glycol	29		
Kaolin	17	58 polyol	
Titanium dioxide	17	40 fillers	
Silicon dioxide	6		
3. Glycerol	7	55 polyol	
Propylene glycol	48	44 fillers	75
Kaolin	19		
Silicon dioxide	6		
Titanium dioxide	19		
4. Glycerol	6	44 polyol	
Propylene glycol	38	54 fillers	80
Kaolin	25		
Titanium dioxide	25		
Silicon dioxide	4		

Similar results are obtained by admixing, according to procedure of Example 1, any of the following fillers or mixtures thereof with any of the following anhydrous polyols or mixtures thereof:

Filler	Polyol	
Kaolin	Glycerol	90
Fuller's earth	Propylene glycol	
	1,3-butyleneglycol	
Bentonite	Diethylene glycol	
Attapulgite	Dipropylene glycol	
Titanium dioxide	Hexylene glycol	95
Silicon dioxide		

#### EXAMPLE 4

To further illustrate the cosmetic composition of the invention, a cosmetic stick was prepared by admixing 75% by weight of a mixture of glycerol and propylene glycol with 15% by weight of ethyl alcohol, 4% fumed silicon dioxide and 6% sodium stearate according to the following procedure:

Silicon dioxide was dispersed in the polyol blend and heated to 70°C. Sodium stearate was dissolved in the ethyl alcohol and the blend heated to 70°C. The two phases were combined, the mixture was cooled and processed into moulds. The stick was applied to the skin of test subjects. The subjects reported a very soothing warmth was noted on the areas of application.

#### WHAT WE CLAIM IS:—

1. A topically applicable composition for cleansing and soothing cutaneous tissue comprising: a non-irritating, essentially anhydrous polyol capable of exothermically de-

- hydrating the cutaneous tissue and an adsorbent particulate filler wherein the weight proportion of polyol is from 40% to 90% and the weight proportion of filter is from 60% to 5 10%.  
2. A composition in accordance with Claim 1 in which the polyol is selected from propylene glycol, glycerol, 1,3-butylene glycol and mixtures thereof.  
10 3. A method for producing a topically applicable skin cleanser comprising: forming a paste of a liquid, non-irritating, essentially anhydrous polyol capable of exothermically dehydrating cutaneous tissue and an adsorbent particulate filler wherein the weight proportion of polyol is from 40% to 90% by weight and the weight proportion of filler  
15 is from 60% to 10% by weight and thereafter processing said paste to form a cream.  
4. A method for simultaneously cleansing and soothing cutaneous tissue comprising topically applying to the tissue a composition as claimed in Claim 1 or Claim 2.  
5. The method in accordance with Claim 4 including the step of removing the polyol from the tissue after application.  
6. The method in accordance with Claim 5 including repeating the steps applying the polyol to the tissue and thereafter removing the polyol from the tissue at least once.  
7. A cleansing composition according to Claim 1 substantially as set forth in any of the foregoing Examples.

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## MARKS &amp; CLERK.

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